

133 Here, too, the left shore is mostly flat and swampy; the right, on the other hand, is hilly and drier. Now and again mountain chains also appear /190/ on both sides of the river and force its masses of water into a closed bed. The last part of the river is closed in on both sides by mountains, although the river still reaches a width of 5 to 10 kilometers in places.

1507 The Amur is navigable for its entire length, and its source rivers, too, are still regularly traveled by steamers, the Shilka being traveled as far as Sretensk and the Argun as far as Olochi. The speed at which the Amur flows is varying and depends on the drop at any one spot. In this the river has to overcome three steps: the Great Khingan, the Bureya Mountain Range, and at the end the Sikhote-Alin'. The mean velocity of the Shilka and of the upper Amur is 5.5 to 6 kilometers per hour, that of the middle Amur is 4.2 kilometers, and in the lower course of the Amur the mean velocity is 3 kilometers and less. The conduction of water varies greatly, especially in the upper course, since here the source rivers, especially the Shilka, dry up almost entirely in the period of less water--and here this period is the winter. At this time the Shilka conducts only approximately 8 cubic meters per second at Sretensk, while at the same place it conducts 142 cubic meters when the water level is normal, and 420 cubic meters when the water is high.

The following table shows what quantities of water the Amur carries along in its various parts and the differences in the water fluctuations at the various localities:

Localities	Length of this section of the river in kilometers	Drop of this section of the river in meters	Water conduction, Annual mean in cubic meters per second	Minimum in cubic meters per second
From Pokrovk--				
Albasin	238	55	1, 200	125
Chernyayevo	190	49	1, 500	165
Kumara	213	39	1, 700	200
Blagoveshchensk	226	33	1, 800	220
Poyarkovo	164	17	4, 000	550
Innoken'yevska	130	17	5, 000	700
Yek. Nikol'skaya	252	36	5, 500	850
Mikh. Semenovskaya	190	14	8, 500	1, 500

(Table continued on following page)

Localities	Length of this section of the river in kilometers	Drop of this section of the river in meters	Water conduction. Annual mean in cubic meters per second	Minimum in cubic meters per second
Khabarovsk	258	15	10,000	1,800
Komsomol'sk	360	16.5	11,100	2,000
Bogorodskoye	410	12	11,700	2,100
Mouth	170	4.5	12,200	2,200

Corresponding with the water conduction, the water horizon fluctuates more in the upper parts of the river than in the lower parts. The range of the annual water fluctuation is 9.7 meters at Sretensk, a mean of 6 meters at Khabarovsk, and only a little more than 2.40 meters at Nikolayevsk. However, the high water which appears very suddenly as a result of downpours of rain in the summer, varies greatly from year to year. The floods from the mighty /191/ river area often break so quickly that they cause great destruction. The largest known flood was in 1872. At Blagoveshchensk the water rose 10 meters in a short time, and in the narrow break-through valley of the Bureya Mountain Range the water even rose 15 meters. The water masses pouring out wildly and in an unruly fashion tore along with them numerous settlements near the river and their people, animals, and property. The year 1928, too, was distinguished by an extraordinarily heavy high water, which brought the city of Blagoveshchensk into a state of great distress.

Because of the ice covering the navigable period of the Amur is limited to the summer months. The mean duration of the ice-free period is 155 days at Sretensk, 170 days at Blagoveshchensk, 185 days at Khabarovsk, and again only 160 days at the mouth of the Amur. On the middle Amur the southern location makes itself felt, and at Khabarovsk the effects are felt of the emptying in of the great rivers coming from the south, the Sungari and the Ussuri. These two rivers become free of ice earlier than the Amur and bring warm water into the Amur. In the periods of navigability the view is hindered in the mountain regions by thick morning fogs which force the ships to travel more slowly or even to stand still. Then rapids and stony areas constitute a hindrance in the upper part, and sand banks in particular constitute a danger for almost the entire course of the river. The sand banks consist mostly of soft, slimy masses of sand, which form in the river bed as

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505 longish heaps which are constantly being added to; and when the water is low, these sand banks also often emerge as islands. The lower Amur has no hindrances and can be used at all times by ships with a depth of up to 3 meters, and on the last 420 kilometers of the river it can even be used by ships with a depth of 6 meters and more. If broad, flat sand bars did not close off the entrance at the mouth of the river, sea-going ships could travel 100 kilometers into the Amur. The annual changes of the water conduction causes the ship traffic on the upper part of the Amur to be such that from May to August ships with a depth of 1.5 meters can go as far as Blagoveshchensk and ships with a depth of somewhat more than 1.0 meters can get as far as Sretensk on the Shilka without hindrance. In September, on the other hand, travel as far as Blagoveshchensk is dangerous for ships with a depth of 1.20 meters and travel as far as Sretensk is dangerous for ships with a depth of 0.90 meters. These limitations apply to through traffic and do not exclude the possibility that in individual parts of the river, where shallow places do not hinder passage, larger ships could also be employed without limitations in local traffic.

The Amur as the main water vein in the entire land receives its great importance for transportation only through its numerous and important tributaries. These are in large measure navigable by ships, and over even larger lengths navigable by rafts, and thus open up wide areas of the entire province.

The Shilka is the main source river of the Amur and drains the water from an area of more than 210,000 square kilometers. Its source river, the Ingoda, is navigable by rafts for 455 kilometers, and, when the water is high, it is hypothetically navigable by ships from approximately Chita on. The Ingoda itself and its right tributaries come from richly forested areas and bring /192/ to the Amur wood above all. The Onon is navigable by rafts for 550 kilometers. In its upper course it is a steppe river, and only in its lower course does it flow through forested region.

The Argun, with a total length of 1,580 kilometers, drains an area of 260,000 square kilometers. It rises in the Great Khingan in Manchuria, where it bears the name of Hailar, and it receives also numerous tributaries from the right. Thus it never suffers from a water shortage. On the other hand mountains appear right on the river at its lower end and produce various strong rapids. The bed is stony and not uncommonly is filled with large blocks of rock, which in many cases lie across the river like chains, making it very difficult for ships to

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get through. Although its middle course along the border is 200 to 300 meters wide and has sufficient depth, which in places it up to 8 meters, the Argun is regularly traveled only on the last 54 kilometers. The floating of wood, on the other hand, is very active on the entire course of the river.

The Zeya with a length of 1,225 kilometers and a width of up to 2 kilometers, is the most important left tributary of the Amur. In its upper course it has a sharp drop, and only below its breach through the Tukuringra Mountain Range does it quiet down. The monsoon air masses, which are forced to rise in the mountains in the area around the upper course of the Zeya, bring especially heavy rainfall here. The water conduction reacts very exactly to this rainfall, and thus, according to the downpours of rain, high waters arise and the river then again and again goes over its normal banks. Thus during almost the entire summer the Zeya conducts a great deal of water and is hypothetically navigable for medium-sized steamers for 950 kilometers and even 1,100 kilometers for smaller steamers. Zeya-Pristan' (harbor) is the end point of the regular steamer traffic. Here the goods are stored up during the summer in large warehouses in order then in the winter to be taken by sled into the gold districts on the upper course of the Zeya and on its tributary, the Gilyuy. The new Baykal-Amur Railroad crosses the river at Zeya-Pristan'. From the left there flows into the Zeya the Selemdzha which is 690 kilometers long and which is navigable by ships as far as Norsk.

Water Conduction of the Zeya

Locality	Annual Mean in cubic meters per second	Minimum in cubic meters per second
Zeya-Pristan'	1,100	22
Tyda Estuary	1,350	45
Selemdzha Estuary	2,100	105
Mouth	2,350	125

The Bureya, the next large left tributary of the Amur, is 740 kilometers long and up to 700 meters wide on its lower course. The upper and middle course of the river flow through mountainous regions and conceal numerous obstacles. Thus the river, which is rich in water, is navigable only on its last bit. When /193/ the water level

133 is high, however, steamers get over 345 kilometers along the river as
 505 far as Chekunda, indeed on occasion as far as the mouth of the Unalta.
 The Bureya is important as a supply route for the gold regions on its upper course.

The Zeya and Bureya bring a great deal of wood to the Amur.

Water Flow of the Bureya

Locality	Annual Mean in cubic meters per second	Minimum in cubic meters per second
Niman Estuary	392	8
Ushumun Estuary	579	11.5
Talakan Estuary	980	19
Daldakan Estuary	1,025	19.5
Mouth	1,067	20

The Ussuri River is on the border toward Manchuria. Its length, including that of its source river, the Daubikhe, is more than 900 kilometers, its width fluctuates between 100 and 1,000 meters. It is navigable by ship for its entire course, and it is regularly traveled even though sand banks and other shallows offer obstacles on the winding course. The Ussuri line is the best opened up in terms of transportation, for the main railroad and a highway also run in the direction of the river.

501 Water transportation in the Amur area is mostly served by small steamers with a mean of 500 indicated horse power and with a carrying capacity of their own of 250 tons. However, recently numerous larger vessels have also been employed which have been specially built for service here. As a rule wide, shallow-draft barks are used to transport goods; these barks have a carrying capacity of up to 800 tons and are mostly put together in trains of barges. The number of river steamers and tug boats in the 1930's was more than 200 and has since probably been enlarged. In addition to the transportation fleet, there is also an Amur war fleet, which has its seat in Khabarovsk and which consists of river gun boats with a size of up to 1,000 gross register tons.

133 The main part of Transbaykal to the west is drained by the
 505 system of the Selenga. The Selenga comes from Mongolia and rises there from the two rivers, the Ider-Gol and the Muren-Gol. The length of the Selenga is 1,272 kilometers, its river area covers 511,464 square kilometers. Not far from Kyakhta it enters the territory of Transbaykal,

where it flows for another 414 kilometers. In this part the Selenga is 200 to 450 meters wide and has a mean depth of 1.6 meters. The mean velocity reaches 5.6 to 8.5 kilometers per hour. Apart from a bar off the mouth, which makes entrance into the river difficult, there are no large hindrances here, and accordingly the Selenga can be designated as completely navigable in this part. Occasionally smaller steamers travel 480 kilometers into Mongolia during the high water period in the summer. The period when the river is navigable lasts exactly half a year. The water level during this period fluctuates approximately 2 meters as a mean. Regular steamer shipping /194/ has developed as far as Ust'-Kyakhta. The tributaries are traveled as needed. The largest tributaries are the Chikoy, which is more than 740 kilometers long and is navigable by ship for 249 kilometers; the Khilok, which is 742 kilometers long; and the Uda, which is 403 kilometers long. The center of water transportation is Ulan-Ude, where there is also a dockyard for steamers and barks. In connection with the Selenga there is also water transportation on Lake Baykal and on the Angara as far as Irkutsk. The total number of steamers here in 1930 was 87, and the total number of barks was 185 in contrast to only 13 steamers and 18 barks in 1912. [504]

The importance and the capacity of water transport on the Amur exceeds that of the Selenga by several fold. The following table gives a comparison: 505

Water Transport 1939							
in 1,000 tons							
Total	Oil	Wood	Grain	Mineral	Salt		
		By ship	By raft	Construction			
				Materials			
Selenga	200	7	7	91	45	14	1
Amur	1,305	191	11	645	186	65	13

Air Transport

Air transportation was early introduced into the entire Far Eastern region to overcome the great distances. The main line coming from Moscow leads via Chita and Khabarovsk to Vladivostok. Beside the direct line, flights are made along this stretch to the following localities: Ulan-Ude, Chita, Nerchinsk, Mogocha, Skovorodino, Tyginsk, Svobodnyy, Arkhara, Birobidzhan, Khabarovsk, Bikin, Iman, Voroshilov, 509

In mountain areas where only narrow, often steep paths are available, the beast of burden shows his real value. Only the horse is used as such; the reindeer is used very rarely since it has a backbone that is too weak and is not suitable as a draft animal. The reindeer is very rarely used as a riding animal and then only by the Lamut. The saddle is up in front on the reindeer; thus the rider sits directly over the reindeer's front legs. 492

Recently the horse has been adopted more and more on Kamchatka and also on the coast of the Sea of Okhotsk, and here and there it has already displaced the dog as the draft animal.

In summer, traffic in the entire north goes into the land from the coastal localities to which the coastal steamers make runs. The distances, therefore, are not so great, and the rivers make possible a further penetration into the interior. 489

The Kolyma has acquired a special significance in this connection; it is regularly traveled every summer to supply the gold districts. To be sure, the period when the river is navigable lasts only approximately three months. If, however, the entire coastal strip is covered with ice in winter and entire sections of the sea become ice wastelands, then the old means of transportation--dog sleds and reindeer sleds--still come into their right even today.

Sea Transportation and Ice Conditions along the Coast

The extensive coasts of the Far Eastern regions are above all designed for sea transportation. This applies primarily to the entire coast north of the mouth of the Amur; the localities along this coast have only a very slight economic hinterland behind them or no such hinterland at all, and, therefore, in their development, indeed in part even in their obtaining supplies, these localities have been dependent on the sea route alone, which for most of them signifies the sole connection with the outside world. But the coastal localities of the Sikhote-Alin', too, have no built-up and easily passable land routes over the mountains to the thickly populated Ussuri-Khanka depression, and, accordingly, an exchange of goods for these localities is likewise only possible by the sea route. With /198/ this striking importance of sea transportation it is understandable that the Soviet Union has striven with all its powers to build up and to develop sea transportation. Unfortunately, as has already been brought out in the discussion of the climatic conditions, nature is not favorable to sea transportation on 505.

505 the entire Far Eastern coast. Nature has through winter ice barriers drawn an often very narrow limitation, in terms of time, on the usefulness of the sea route.

132 On the Sea of Japan freezing of the coast and freezing over of the rivers occurs relatively early along the Soviet Russian coast in the entire area north of 42° latitude as a consequence of the cold winds coming from the continent. The harbor of Vladivostok, however, [504] can be used all through the year. To be sure, the "Golden Horn" freezes over in the second half of December, and the ice covering remains until into the second half of March, but the ice is not so thick that a path cannot always be made by ice-breakers for the incoming and outgoing ships. Even here, however, the undisturbed ice can attain a thickness of up to one meter.

Far more unfavorable are the conditions in the Gulf of Tatar, which separates Sakhalin from the mainland. In the southern part the ice distribution and with it the accessibility of the coast depends on the prevailing winds. With persistent northwest winds the ice piles up on the western coast of Sakhalin; with east and southeast winds, on the other hand, the ice is driven toward the mainland coast. North of 51° latitude the ice covering is thicker; there the gulf is covered by a closed ice covering throughout approximately 125 days a year, and passage is free only at the beginning of May. The individual bays, however, on which the coastal towns lie, are closed over earlier and also remain shut off by ice longer. The Amur at Nikolayevsk has an ice covering for a mean of 184 days. The table appended to this chapter gives details on this *

As a consequence of the northwest winds which set in already in September and especially in October, the Sea of Okhotsk comes under continental influence early. At the end of October and in the first half of November ice formation begins along the northern coast. The thickness of the ice grows until into March, persists through April, and only in May does the disintegration of the ice begin. Almost at the same time the breaking up of the ice also begins, at first at the mouths of the rivers and then along the coast. This type of breaking up fosters the destruction of the solid coastal ice, which is then further broken up by the wind and battered by the waves. As a consequence of the current the ice is driven toward the west and southwest and collects in Udkaya Bay and at the Shantar Islands in the southwestern corner of the Sea of Okhotsk. As a consequence of this the ice persists the longest in these places. Even in July large ice fields can be

²[cf. pp. 231-232 -- Analyst]

encountered there. Thus the steamer 'Tula' ran into extensive drift-ice fields between the mouth of the Amur and the Ayan between the 20th and 28th of July, 1916. It /199/ /Sketch Map of the Highest Level of Ice Distribution/ could neither get into Ulskaya Bay nor sail toward Nikolayevsk on the Amur and had to return to Vladivostok via La Perouse Strait with its load without having reached its goal. Equally noteworthy is the fact that on January 20, 1940, the merchant steamer 'Igarka' was able to reach Ayan without impediment and without the aid of icebreakers. It was the first attempt at a winter trip in this territory. On the return journey, however, the ship became locked in heavy ice and required the icebreaker 'Krassin' to free it. Apart from the southwest corner and the northwest bays /200/ the Sea of Okhotsk is generally ice-free in June. The bays on the north coast are already completely blocked by solid ice by the end of November. This solid ice covering then grows all along the coast farther into the sea. Penzhina Bay provides one exception to this rule. The formation of a solid ice covering is prevented at Penzhina Bay by a tidal current with a tidal hub /Tidenhub/ of up to 12 meters. Heavy pack ice masses thus collide. The ice lasts both here and in the neighboring Gizhiga Bay until the middle of July.

The ice conditions appear to be most favorable on the western coast of Kamchatka. The northeast and east winds break up the ice near the coast and drive it into the sea. Even in the middle of winter a strip of ocean is kept open in the vicinity of the coast, while at a greater distance from the shore heavy masses of ice remain fixed throughout the entire winter.

The passages between and the coasts of the Kurils, which lie between Kamchatka and the Japanese Hokkaido, are stopped up with drift ice from January to the end of March when the winds are from the west and northwest, but otherwise they are passable; the farther to the south the easier the passage. Often drift ice between the southern Kurils is driven out far into the Pacific, where drift ice can be encountered in May and even into June if the winter has been especially harsh.

The eastern coast of Kamchatka, in so far as it belongs to the Pacific Ocean, has no ice formations which interrupt ship traffic. To be sure there is drift ice everywhere, but this collects into larger masses of pack ice only on the sand banks in the vicinity of the coast. Solid ice forms in the bays--for example, in Avacha Bay, on which Petropavlovsk, the capital of Kamchatka, lies. However, the ice

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(305)

132 service and help from ice-breakers, could very much expand the use-
 654 fulness of the parts of the sea threatened by ice. And here the Soviet
 government has accomplished excellent work worthy of recognition.

505 The center of all the coastal traffic is Vladivostok, from which
 all lines start. Sea traffic is most active in the most southerly part
 of the coast as far as Nikolayevsk on the Amur. However, the more
 northerly localities are also visited regularly several times a year.
 The longest line leads to the mouth of the Kolyma, whence a trip by
 one or even several steamers at the same time is undertaken every
 year. Of the 2,021,000 tons of goods turned over in the harbor of
 Vladivostok (1935), 864,000 tons came from coastal traffic.

The following figures on distances may explain transportation
 conditions:

Coastal Steamer Lines

Distances from Vladivostok

Sovyeitskaya Gavan'	1,075 kilometers
Aleksandrovsk on Sakhalin	1,335 kilometers
Nikolayevsk on the Amur	1,575 kilometers
Okhotsk	3,210 kilometers
Petropavlovsk	2,785 kilometers
Anadyr'	4,640 kilometers
Mouth of the Kolyma	5,200 kilometers

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/205/ B. SPECIAL SECTION

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/207/ THE PROVINCES

General Division

133 As the general survey has already shown, the geographical
 conditions of even a large division of the entire region fall into 1

1 [Ct. cat. 133. p. 232 for continuation - Analyst]

133 over long years, Lake Baykal remains for 116 days under a solid ice
132 covering, which can attain a thickness of up to 1.25 meters.

136 The fauna of the lake is peculiar, representing a true collection of endemic forms. Of the 1,000 types determined so far, around 75 percent are endemic. Here in the middle of the continent there is a type of seal called "nerpa" by the Russians (*Phoca sibirica*), which is related both to the same type found in the Arctic Ocean (*Phoca hispida*) and also to one found in the Caspian (*Phoca caspia*). The next fauna worthy of mention is the small, viviparous spider fish (*Callionymus baicalensis*), whose family (Comephoridae) is peculiar only to Lake Baykal. Exceedingly large is the number of mollusks. To date 85 types have been determined, of which two endemic families of brachiopods (*Benedictiidae* and *Baicaliidae*) are typical fresh water representatives. The great age of the Baykal fauna, which must have followed an isolated development, indicates the /209/ /Sketch Map of the Provinces:/ /210/ appearance of the Baicalia mollusks already in the fresh water deposits of the lower Cretaceous in Transbaykal.

505 As a result of its depth and its favorable natural landing places, Lake Baykal offers the best opportunities for water transportation. A steamer line which is traveled regularly, connects all the larger settlements with one another and also serves the transportation of goods. Wood constitutes the bulk (40 percent) of the goods transported, in second place are stones and building material (30 percent), then follow fish, salt, flour, and others. The wood as a rule is floated down the rivers to the lake and then is transported by steamer tugs to the mouth of the Angara, where it is transferred to the railroad in Baykal station, which is equipped with mechanized loading equipment, or a small part of it is floated directly to Irkutsk. Wood is delivered on the Transbaykal side primarily by the river areas of the Barguzin and the Upper Angara.

228 Also of economic significance is fishing, which is pursued both in the open sea and also in the bays. The principal role in this fishing is played by the catching of a type salmon, the omul (*Coregonus omul* Pall. or *Coregonus migratorius*), and of fish related to the omul; these fish constitute 58 percent to the catch. In second place are types of carp (22 percent), which are caught primarily in the lagoons and in neighboring lakes. Also the catch of seals, already mentioned, is not insignificant. In 1948 there were 1,380 animals caught. Fishing is pursued both by the state and also by fishing kolkhoz. The latter caught 68 percent of the total catch in 1949, while the state was

2 [i.e. Lake Baykal -- Analyst]

133 permafrost, however, create great difficulties. Development of the area is hampered by the area's remoteness and the difficulty of gaining access to it, since the break-through valley of the Zeya toward the south represents the sole gateway to the depression. To date the supplying of the area has been done on the water route as far as the locality of Zeya, for the Zeya River is navigable to this point. The supplies are then brought by vehicles further up the river. The area around the upper course of the Gilyuy is crossed by the highway from Never to Yakutsk. This highway crosses the Tyndinsk, a tributary of the Gilyuy, at Tyndinsk. The new Baykal-Amur Railroad, coming from the Nyukzha valley, is also supposed to enter the valley of the Gilyuy at the same place and to follow the Gilyuy as far as the Zeya, in order then likewise to use the Zeya's break-through valley as an exit toward the south. The laying of this railroad line through the Zeya-Gilyuy depression is expected to lead not only to better opportunities for exploiting the gold fields but also to the use of the rich supplies of wood in the forests, and finally also to better settlement of the area.

/240/ The depression of the upper Zeya and Gilyuy is cut off into a vast basin on the south by a watershed mountain chain. The Zeya is the sole river flowing off to the south in this basin. This mountain chain is regarded as a continuation of the Daur and the Shilka mountain ranges; it stretches from Transbaykal via the Olekminsk Stanovik to the depressions of the Amgun (left tributary of the lower Amur) (207). This entire line of mountain ranges was, according to

207. Tanfiliev, G.I., *Geografiia Rossii: Relief Aziatskoi Rossii /Geography of Russia: The Relief of Asiatic Russia/*, 2 vols., (Odessa, 1923), p. 250.

Ahnert (16), formed partly by faulting but principally and especially

16. Anert /sic/, E.E. *Kratkii geologicheskii ocherk Priamuria /Short Geological Sketch of the Amur Region/. Geological Research in the Gold Regions of Siberia, Vol. XVII. Petersburg, 1913.*

on the southern edge, by break formations. Within the Oldoy-Zeya Highland the chain of mountain ranges begins in the west with the Yankan Mountain Range, which lies between the upper courses of the

on the Manchurian side, lies the city of Heino (Sakhalyan), from whence there is a spur to the railroad network of Manchuria. The area around the lower course of the Bureya has the same character in terms of landscape as do the plains on the Zeya. The nearness of the highland permits the basic rock to come out more often here. The population is likewise dense and in the valley of the Bureya penetrates farther toward the north into the highland. The center of the region is the little city of Bureya, which lies at the point where the railroad crosses the Bureya River. A railroad line, which is 43 kilometers long, branches off from here to Raychikhinsk, the center of the largest brown coal deposit in the Amur country. Zavitaya, from which a new railroad line has been built to Poyarkovo on the Amur, /249/ has acquired a growing importance during the most recent period. [496]

The brown coal fields lie between the railroad and the Amur and stretch from the Bureya in the east to the Zavitaya in the west, covering an area of 600 square kilometers. Raychikhinsk and Kivdinskiy are the centers of the coal mining. The transporting of the coal is done for the most part by railroad to the Bureya station, where there are opportunities to transfer the goods to river shipping. 316

The northern part of the Zeya-Bureya plain is drained primarily by the Selemdzha. The population here decreases rapidly toward the north, and settlement is limited to the valley areas of the rivers. On the Zeya, settlement reaches to the town of the same name at the foot of the Tukuringra Mountain Range; and on the Selemdzha, settlement ends approximately at Norsk. Both rivers are regularly traveled by steamships as far as the localities named. With the new construction of the BAM, which goes from the middle Zeya and runs through the area toward the east and crosses over the Selemdzha at the locality of Norsk mentioned above, new prospects have opened up for the further development of these regions, which are favorable for settlement but which in the past were too remote. [505]

The Bureya Mountain Country

The Bureya Highland has a central position in the Amur country. It forces the Amur to make its large southern bend; and, in the south where it joins the Little Khingan, it makes a path to the east free for the Amur only in a narrow break-through valley. In the same place the Bureya Highland shoves itself like a wedge into the great depressions running along the Amur and separates the Zeya-Bureya plain in the 133

133 west from the depressions on the lower Amur and Amgun.

For the most part the highland comprises, as its inner zone, the drainage area of the Bureya, which also is bordered by the two main chains of the highland: i.e., in the west by the Turana Ridge, which is the watershed toward the Zeya, and in the east by the Bureya Mountain Range, which represents the watershed toward the lower Amur.

The Bureya Mountain Range forms the backbone of the highland. It begins on the Amur as the continuation of the Little Khingan which stretches from Manchuria over the river toward the northeast. The Bureya Range is, therefore, also known under the name of Little Khingan. But here the Russian geographers, who designated the mountain chain generally as the Bureya Mountain Range, are to be followed. These mountains run principally toward the northeast, though the direction of individual sections changes from place to place. This continues until the mountain range runs into the already mentioned Dzhagdy Mountain Range, which comes from the west. Here in the north individual sections are known under special names: thus, the Duse-Alin', which in an arc surrounds the left source river of the Bureya (Levaya Bureya), and, adjoining the Duse-Alin' on the north, the Yam-Alin', which flows into the Dzhagdy Mountain Range. The Tam-Alin' and the Dzhagdy border on the north and the east the gold-rich area /250/ around the source and the upper course of the Selemdzha; while from the southern part of the Yam-Alin' a mighty massif, forming a watershed, shoves in toward the west between the Selemdzha and the upper Bureya. Here in the northern part of the Bureya Highland, where immense high plateaus unite in a narrow area, there also lie the highest elevations of the Bureya Mountain Range and also the highest elevations of the entire highland. The Yam-Alin' has several peaks which project 2,000 meters. Its highest point reaches 2,215 meters. Also the watershed massif between the sources of the Selemdzha and the Bureya has several gol'tsy, which are only a little inferior to the Yam-Alin' peaks and which project between 2,115 meters and 2,155 meters.

316 The area around the source of the Selemdzha is rich in gold and has gold-washing installations, which are in part mechanically run. But the remoteness of the region causes the very great difficulties to the works which are directed by the state. The primary supply route is the Selemdzha, which is regularly traveled by steamers as far as Norsk, often designated as Norskiy-Sklad. And under favorable conditions the Selemdzha is even traveled as far as Selemdzhinsk.

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137 in constantly from the sea in the summer, have given these forests a peculiar appearance. The branches are covered with long lichen, which hang down like beards, and moss grows on the stems as far as the boughs. A thick layer of moss also envelops the earth, and with every step water springs from the damp cushion. In the deeper places and also in the middle part of the highland, larches then appear as forest-formers, and the forests gradually become purely larch forests, and also fill the valley areas as far as the middle courses of the great rivers and press far to the south. The reason for this can be seen above all in the fact that the cold air masses flow down into the valleys and thus prevent the expansion of other types of trees. Only on the lower courses of the rivers flowing toward the south do deciduous trees set in. The larch forests which cover the bulk of the Bureya Highland are economically the most valuable.

316 The valley of the Niman was once among the most famous of the gold fields in the Far East. But the deposits are already exhausted. In their place the gold fields in the area around the upper course of the Bureya have now appeared, but these cannot compete in yield with those of the Selemdzha. The valley of the Bureya serves as the connecting path to the gold dressing installations. When the water level is good, the Bureya can be used by steamers for 345 kilometers as far as the locality of Chekunda, and occasionally even as far as Umal'ta. From Chekunda down the greater drops already work so strongly against water vessels that from here on the boats as a rule have to be drawn by horses. The last part of the way then is traveled by car or with riding horses and pack horses. An extension of this route toward the east leads over a pass, which is more than 1,000 meters high, to the gold fields on the upper course of the Kerbi, a tributary of the Amgun, which already belongs to the lower Amur. This much-traveled old Bureya gold route has today for the most part lost the importance it once had, since rich deposits of molybdenum and especially of coal have been found in the valley of the upper Bureya and a railroad has been built there.

316 There is molybdenum in the valley of the Umal'ta, a left tributary of the upper Bureya. Here a great molybdenum works has been erected in Ust'-Umal'ta. The hard coal deposits fall into two parts, into the deposit on the upper Bureya and the Tyrma deposit, which are separated from one another only by tectonic occurrences with succeeding erosion. For the /252/ opening up of these deposits a railroad line is being built from Izvestkovyy, which lies west of Birakan on the Amur Railroad. This new railroad line leads over the Bureya

Mountain Range to the upper course of the Tyrma and then follows this river to the point where it empties into the Bureya. The railroad had already been completed as far as Ust'-Tyrma in 1942. Since then the construction of this railroad, which now runs parallel to the course of the Bureya, has been continued via Chekunda to Umal'ta. With this an outlet has been created for Bureya coal toward the south to the Amur Railroad, but the waterway of the Bureya is also used to transport the coal away. The expansion of this waterway is being worked on. In addition, there is the fact that the Baykal-Amur Railroad also crosses the same region. This railroad leaves the Selezmdzha at Norsk, crosses the Turana Ridge and reaches the middle course of the Bureya at Chekunda, to continue further over the Bureya Mountain Range to Komsomol'sk.

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The construction of both these railroads in the sphere of the Bureya Mountain Range has above all an industrial significance. Next to coal, wood is the most important item for transport which this region can supply. In the traffic going the other way, the bringing in of food is probably the main task of the railroads. The Bureya also plays a certain role in this connection; for, according to various reports, continuous loads of grain go up the river during the period when it is navigable. The supplying of the new Bureya coal region must be assured from outside because the Bureya valley itself is very unfavorable for agricultural settlement. Everywhere here the Bureya has the character of a mountain river. Its valley between Ust'-Umal'ta and Ust'-Niman is up to 3 kilometers wide, but the river, which here is very wild, regularly floods a part of this country and causes extensive swampiness. From Ust'-Niman to Chekunda the right bank is steep and rocky; the left bank is, to be sure, level, but it is taken up by swamps which are difficult to travel. Below Chekunda as far as the settlement of Paykan the valley narrows, and on both sides the rocky mountains come right down to the shore. Only shortly before leaving the mountain ranges does the valley meadow widen into an area favorable for settlement. Thus the prospects for agrarian settlement in the area of the Bureya valley are not very good, and it will require long years of difficult cultivation work before the new coal mining region will be able to supply its own food.

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If we survey the entire Bureya Highland, then, it can be determined that, apart from the spottily occupied gold regions in the north and apart from the Bureya and Tyrma valleys which are now filling up with people in a limited area, the other regions are as good as

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lengthening of the BAM via the Sikhote-Alin' to Sovyetskaya Gavan', which is the best natural harbor on the coast of the Gulf of Tatar. The railroad for a part of the way uses the middle course of the Khungari, a right tributary of the Amur, in whose basin a large Tertiary brown coal deposit was discovered in 1932. This deposit is supposed to be used to run the railroad. At present the railroad to Sovyetskaya Gavan' already plays an important role in the treating of lumber from the Sikhote-Alin', which is processed for export in a large lumber mill in the harbor city. 361
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Nikolayevsk with its approximately 30,000 inhabitants is the economic center in the region around the mouth of the Amur. It owes its importance above all to the wealth of fish in the neighboring parts of the sea and in the Amur. Accordingly, it has been able to develop into one of the largest centers of the fish-processing industry. The city cannot develop very well as a sea harbor because of the harsh climatic conditions--the ice-free period lasts only around 160 days--and the unfavorability of the mouth. The mouth of the river is closed off by a sand bar of great width, which enables only those ships to pass which have a draught of up to 3.50 meters. In addition, there is the fact that the "Amur-Liman" itself is very flat, has many shallows, and thus permits sea-going ships to travel on it only in a few natural canals. Thus only smaller coastal vessels can get into the Amur, while larger sea-going ships must be unloaded on the open sea and their goods transferred to river vessels. For many years they have been in the process of creating a suitable waterway in the Amur, but the difficulties appear to be too great. Above all the natural deposit of bar sand again and again destroys the work of man. [235]
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The Sikhote-Alin'

The Sikhote-Alin' with its mountains fills the entire area from the mouth of the Amur on the north to the steep break at the Bay of Peter the Great. In contrast to this vast expanse, the narrow depression which extends at the western foot of the Sikhote-Alin' and which only in the south has extensive plains, appears to be of subordinate importance, particularly, too, because spurs of the Sikhote-Alin' not uncommonly penetrate almost to the Ussuri, and individual mountains of the Sikhote-Alin's border steps which traverse the entire land, appear even in the plain. Nevertheless, the smaller depression has the greater significance, for in it sits the bulk of the population, and in it 133

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Of the more favorable bays on the northern part of the Sikhote-Alin' coast, only the bay is still to be mentioned on which the already-mentioned harbor of Sovyetskaya Gavan' lies. The natural bay, which is suitable as a landing place, has a vast, flat hinterland, which also has a rather thick agrarian population. Since the completion of the railroad constructed from Komsomol'sk to here, the locality has developed quickly into a city with more than 20,000 inhabitants. It has also received a modern harbor. The processing of wood stands at the center of the economy, but, in addition, ship construction is also pursued. The harbor has a floating dock for ships with up to 5,000 gross registered tons.

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For the rest there are in addition numerous small Russian fishing localities on the coast. These mostly lie at the mouths of rivers, and now, through the bringing together and the building up of the fishing industry, these localities are also experiencing a certain upsurge. The supplying of the localities is done by coastal steamer. Only where wider bays and more extensive valley areas have given the opportunity, have Russian settlers also made their appearance here. These settlers have in places already penetrated 50 kilometers and more into the land.

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The real, vast mountain massif of the Sikhote-Alin' is very sparsely populated; indeed, large sections are uninhabited. In the pathless interior on the upper course of the Bikin and of the Khor, on the Mukhen, Anyu, and upper Khungari, the Tungus Orochi and Olcha are still to be encountered. They wander as nomads with their pointed tents and live exclusively from hunting and fishing. But their number becomes ever smaller. Otherwise only a few Russians and Chinese traverse the wilderness of the lonely valleys and mountains while hunting for fur-bearing animals and the antlers of Isiuhr stag. The opportunities for agriculture and the breeding of livestock are slight. Only the broad bottom valleys of the main rivers are suitable for this; here, from the valley of the Ussuri on, Russian settlers are in the process of a slow penetration into the interior, especially on the Khor, Bikin, and Iman, in whose valleys /265/ they can already be found far in among the mountains. It cannot be said how much the collectivization of agriculture has contributed here to a further opening-up of the land or whether a perseverance on the land already won is the consequence of these measure.

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Greater prospects for human activity are offered by the natural resources. Despite the careless cutting down of trees in the border

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which consists of recent and post-Pliocene deposits and which for the most part is covered by a tundra vegetation interlarded with bushes. The extent of this plain varies, being largest in the north around Sakhalin Bay. The plain ends in a 2 to 6 meter step which is delineated rather sharply everywhere. With this step the hill country then begins. This hill country as a rule bears a thick taiga consisting of spruces and larches. The watershed regions are scarcely perceptible in the relief, but they show up in thicker and higher forest growth. In places the hill country step also goes to the coast itself and then forms a higher, steep slope, which can reach 15 to 26 meters. (207) Taiga and sea

207. Tanfiliev, G.I., *Geografika Rossii: Relief Aziatskoi Rossii /Geography of Russia: The Relief of Asiatic Russia/*, (Odessa, 1923), Vol. II, p. 266.

then come very close to one another.

Schmidt Peninsula, so named in honor of the well-known Sakhalin explorer, forms the extreme northern end of Sakhalin. This peninsula forms in miniature a true model of the geological and tectonic structure of the southern section of the island, with even the intrusive phenomena being the same. Here, too, we find an eastern mountain range and a western mountain range with a depression lying between. In the "Tri Brata," the "Three Brothers," the eastern mountain range reaches a height of 708 meters. For the most part this range declines steeply to the sea, and in the north it forms the rocky Cape Elizabeth, the most northerly point on Sakhalin. The western line of mountains, which likewise declines steeply to the sea, attains a height of only 406 meters. The depression lying in between ends in the north with a lake, which is separated from the sea by a narrow tongue of land. On the land narrows which connects Schmidt Peninsula with the main part of the island lies the oil fields of Sakhalin which today have the richest yield.

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Sakhalin's coast is generally but little divided up. In contrast to the more contiguous western coast, the northern coast and the east coast represent typical coasts with alluvial lands and numerous fresh-water lakes. Baykal Bay in the northern part of the island represents the largest fresh-water lake. It can be traveled by coastal ships with a draught of up to 3.5 meters. Here on the eastern side of the bay lies Moskal'vo oil harbor, which has a railroad connection to the oil region in the eastern part of the peninsula. Still more strongly marked

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000 watershed regions, and thus he can still go forward best along the slopes.

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The Amgun region is as good as uninhabited. Only on the largest rivers is human life to be encountered here and there: wooden huts of some Gilyak or also of Tungus Olcha and Negidal, who live from fishing and hunting. On the Amgun itself, however, there are already Russian settlers, who have come together into some small localities. The most important is Kerbi which lies at the mouth of the river of the same name. The Amgun can be traveled by small steamers as far as Kerbi. The Amgun brings goods to supply the area here, and the goods are then towed in boats down the Kerbi to the gold regions.

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The valley of the Tugur becomes up to 20 kilometers wide and gives the same picture. Here, too, moss moors extend far down the valley. The swampiness is strengthened here still more by the appearance of permafrost.

/286/ The river area of the Uda is very extensive. In the Uda collect waters which come from the Dzhagdy Mountain Range and also from the Dzhugdzhur Ridge. The Uda's left tributary, the Maya, which is more than 300 kilometers long, separates the Stanovoy from the Dzhugdzhur. Here, too, the great swampiness causes the traveler great difficulties. The Uda is a mountain river and flows seethingly in a bed filled with boulders and interrupted with numerous rocky islands. Only in its lower course does the Uda become quiet. Here lies Udskeye, a small Russian village, which is the center of the hunting of fur-bearing animals. This hunting still brings very rich yields in these remote mountain regions.

The Okhotsk Coastal Area

The area includes the entire western and northern coastal region of the Sea of Okhotsk, beginning at the Uda in the south and ending at Penzhina Bay in the north. With the coast being more than 2,000 kilometers long, the conditions, of course, vary in detail, but in general the prevailing character of a raw mountain forest landscape with a damp and cool climate is preserved, which is less tolerable for man than the harsh contrasts of the continental interior.

The region can be divided into two parts according to the structure of the coast and according to its forms: a southwestern part between the Uda and Okhotsk with coast which is little divided up and a northeastern part which is heavily broken up by numerous large and

small bays, peninsulas, and islands. The character of the southwestern part is determined only by a line of mountains stretching parallel to the coast, the Dzhugdzhur; in the northeastern part ridges of mountain ranges are predominant which stretch irregularly toward the line of the coast. 133

In the western part, the Dzhugdzhur coast, the mountain ridges go right down to the sea and leave free for settlement by man a narrow coastal strip, which at most widens somewhat at the mouths of the rivers. The Primorsky Ridge, which lies in front of the Dzhugdzhur chain in the south between the Uda and the Ayan, even declines directly and steeply into the sea. The Dzhugdzhur, which stretches parallel to the coast and consists of several ridges, forms a contiguous mountain wall with its masses formed predominantly of granite, gneiss, and porphyry. This mountain wall shuts off the coast from the interior. The mean height exceeds 1,000 meters, and the few unprotected passes also lie almost as high. The watershed runs in the vicinity of the coast, and thus along the entire coast only short rivers, which, however, seethe because of the steep slope, flow down into the sea. Therefore, the deeply etched valleys opening on the sea stand in sharp contrast to the more horizontal lines of the round peaked surface of the massif of the mountain range. The valleys are filled with thick /287/ taiga, teeming with underwood, and, with the narrow bottom of the valley saturated with boulders and scree, these valleys offer man only a very difficult opportunity to penetrate into the mountain range; and yet these sharply etched and steeply rising valleys are the sole routes which lead from the coast into the interior of the land. Thus the fact that the coastal strip is cut off from the hinterland is a special mark of this region. The ridge is more thickly forested only on the slopes, while the heights themselves have only a spotty, crippled growth of trees or lie completely bare in the highest places. The passes, too, mostly lie above the tree line and are scarcely usable in winter as a consequence of violent snowstorms.

The interior of the mountain ridge is as good as uninhabited. Apart from hunters, only a few Tungus with small reindeer herds cross the desolate mountain areas. On the coast there are a series of Russian fishing settlements. The principal locality here is Ayan. It lies on a favorable natural bay, which is approximately 1 kilometer both long and wide and 6 to 38 meters deep. Since the entire Dzhugdzhur coast is blocked by ice in the winter, the harbor can be used only in summer, although constant violent sea winds often hamper the departure of sea 361
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361 ships and indeed in many instances make departure impossible. From
505 Ayan a route starts toward Yakutsk. This route rises steeply over the mountain range to Nel'kam on the Maya, a left tributary of the Aldan. From here the rest of the way is on the rivers, via the Maya, the Aldan, to the Lena. Ayan, which is notorious for its heavy rainfall, cannot really make progress despite its favorable natural harbor; and, although the beginnings of its development reach far back, Ayan has scarcely 1,000 inhabitants.

361 In the north the Dzhugdzhur Ridge bends away from the coast and makes way for a vast coastal lowland which penetrates deeply into the land. Here, at the mouth of the Okhota, which forms a good natural harbor, lies the village city of Okhotsk, the first and oldest harbor of the Russians on the Pacific. In addition to a telegraph line, Okhotsk has a land route connection with Yakutsk. The use of this route causes fewer difficulties than the route from Ayan. At present Okhotsk is an important fish collection point. On the coast and also in the hinterland of the depression, numerous Russians have settled. In addition to an agricultural economy based on the cultivation of potatoes and vegetables, these Russians devote themselves to the breeding of livestock, which does very well here in the natural meadows of the alluvial plains. Tungus Lamut have joined the Russians, too. These Lamut, in addition to fishing, devote themselves also to agriculture, which they have taken over from the Russians. They apply themselves with the same care to the ox as for generations they have done with the reindeer. Farther in the hinterland of the lowland there are still Reindeer Tungus in large numbers. These Tungus wander as nomads between the bottom of the valley and the mountain tundra.

513 Northeast of Okhotsk the coastal provinces /288/ have another, more varied character. There is not, as is often still represented on many maps, an interrelated mountain chain which runs parallel to the coast; at least there is none between Okhotsk and the Yama, a river east of the P'yagina Peninsula. On the contrary, east of the Okhotsk, spurs of the Cherskiy Mountain Range run into the coast almost at right angles, and between these spurs relatively wide and long valley areas stretch from the coast far into the interior. In addition, in order to make the picture more colorful, there is farther to the east another orographic element, which is limited, however, to the peninsulas and islands. This is a heavily destroyed and broken up mountain chain, which runs approximately parallel to the coast and which, according to the present level of knowledge, is reckoned as belonging to the inner arc of the

137 The mountain ridges themselves are either bare or have underbrush and reindeer moss growing on them.

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563 As a consequence of the contrasts between the protected valley areas and the ridges covered with moss tundra, the hinterland of the coast here is occupied far more by Tungus reindeer nomads than the Dzhugdzhur coast. Also, despite the northern location, the number of coastal localities is larger here than there. Russians, however, are to be found here less often. These localities are predominantly occupied by sea Tungus, who, however, all cultivate some vegetables and potatoes in addition to their fishing. Also--a fact that is especially noteworthy--they follow the Russian example and keep cattle and horses. However, the opportunities which are available here for breeding livestock have still not been long exploited, and thus there are the most favorable prospects here, especially since sufficient hay fields are on hand to assure the supply of winter fodder. The most important localities on the coast are Tauysk, Ola, Yamsk, and Gizhiga, all of which lie at the mouths of the rivers of the same names. During the summer, connection between these localities is maintained by small coastal steamers; during the winter the connection [487] is over the so-called coastal route which leads from Okhotsk along the coast to Kamchatka and which is traveled by horse, reindeer, and dog sleds. All of these coastal localities, however, are exceeded in importance by the newly founded city of Magadan, which came into being only shortly before the last world war and which has already far surpassed the old Okhotsk as a harbor.

135 Magadan owes its founding and its rapid growth above all to the hinterland which is rich in natural resources. Here in the area around the upper course of the Kolyma extraordinarily rich gold fields have been discovered; mine gold as well as gold streams have been found. A more exact exploration of the region showed the existence of hard coal and significant supplies of less common elements. The exploitation, which was taken up rapidly, led to the formation of numerous new localities, and thus there are now more than 50 settlements in the upper Kolyma region. The centers of industrial life lie in the area around the source of the Kolyma and on its tributaries, the Berelyakh and Tenka. The most important of the new localities are Orotukan and Khatynakh. For connection with the outside world 491 a highway was built which can be used throughout the year; this highway leads from Ust'-Utinaya to Magadan on the coast. Since the Kolyma is navigable from Ust'-Utinaya on, this highway has at the

almost never penetrates into the land, however.

The area occupied by settlements is very slight in the east and in the center of the depression. In the west, on the other hand, there are a series of villages on the Anadyr' and its tributaries. Among these, Markovo with its approximately 500 inhabitants has first rank. Russians, too, live in the villages, but otherwise the population is mostly sedentary Koryak, who pursue fishing and the breeding of dogs. In the peripheral regions Chukchee wander more in the north as nomadic reindeer breeders, Koryak wander in the south, and Laumut and other Tungus in the west. Alternation between the excellent mountain tundra in the protected depressions in the winter forms the basis of their life. In large part, these people are still fully nomadic. However, everywhere among them the effort is being maintained to create fixed, permanent winter quarters; and thus with many of these tribes, especially with the Koryak, a transition to semi-nomadism can be determined. Collectivization also has not stopped at these peoples. In 1948 there were in the Koryak National Okrug 40 livestock-breeding kolkhoz (reindeer), in some of which slight quantities of potatoes and vegetables were cultivated. At 70 points along the coast the Koryak have been brought together into fishing collectives.

There are only a few settlements on the coast because of its flat relief offering little protection from the storms. However, the locality of Anadyr', which has almost 2,000 inhabitants and lies at the mouth of the river of the same name, assumes a central position here. This town forms the entrance gate to the entire Anadyr' region and is regularly visited by coastal steamers. A short while ago rather large Eocene brown coal fields were found in the vicinity of the locality. The main deposit stretches opposite Anadyr' on the northern side of the mouth of the Anadyr' from the point where the Ugol'naya flows into the foot of the Zoloty Mountain Range. On both sides of the mouth of the Ugol'naya appear two seams, which have a thickness of 1.5 meters and 5.8 meters. Mining is already underway here /294/ and supplies the coastal steamers. In addition, Anadyr' is the central station of state fishing on the entire northern coast; here the catch of the individual fish collection points are delivered and processed in an important canning factory.

Toward the southwest the Anadyr' depression goes over into the Penzhina lowland, the two being separated only by a gently rolling watershed which is up to 331 meters high. The Penzhina lowland, however, is far smaller in size, and is drained by the Penzhina which

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however, the KVD appoints the head of Dalstroy, leaving to him the selection of his assistants. Authority is held and exercised solely by Dalstroy, and everybody who represents this authority is appointed by the head of the organization or his assistants acting as his agents. Every inhabited place has a "commandant" who has authority over the territory under his control. Under Dalstroy rules this commandant has the right to inflict the death penalty on all prisoners.

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A somewhat different status is accorded to the remnants of the native tribes which form so-called "national districts." They enjoy various privileges and are given assistance by the Soviet Government; however, it should be noted that these privileges and assistance can be considered as such only in comparison with the position of the prisoners. These local tribes number only a few thousand, and even in their national districts they have no real authority to govern themselves.

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4) Population: The population of the region¹ is not accurately known, primarily due to the continual turnover of prisoners who are imported by the hundreds of thousands yearly and who die at almost the same rate. Before the discovery of gold and the creation of Dalstroy, the local population could hardly have exceeded 25,000 to 30,000; according to the census of 1926-1927 the population of the Kolyma region was 7,580. It is very unlikely that the number of aborigines has materially increased under the rule of Dalstroy; in fact, during the first period of the Revolution the native population showed a marked tendency to decrease.

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However, the total population of the Kolyma region during the Dalstroy administration has grown fantastically, and the only explanation is the importation of prisoner labor. The exact number of prisoners cannot be determined for obvious reasons; however, according to a report by a Soviet seaman who formerly served on ships running between Vladivostok and Nagadan the entire Kolyma region is

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"a single concentration camp. Into it have been thrown huge masses of the repressed. How many of them he cannot say exactly.... In his opinion it may be calculated with considerable accuracy that during the years 1937 to 1940 not less than a million and a half persons were brought on steamers from Vladivostok to Nagadan; during each navigation season from April to November four Dalstroy steamers (Felix Dzhershinskiy, Dalstroy, Sovietia, and Dzhurma) were in operation, each making from 12 to 15 voyages in the course of the summer and bringing from 5,000 to 9,000 persons on each voyage."¹

(Note: Radio Nagadan in a report on 24 October 1955 stated that "Nagayev port vessels - [Nagayev is the port servicing Nagadan] - have fulfilled their annual cargo delivery plan 105.8%... the seagoing vessels of the Nagayev maritime port overfulfilled their 8 month cargo delivery plan but failed to fulfill their 9 month plan. The leading place among seagoing vessels is being held by the steamship 'Felix Dzhershinskiy.' Good results were also achieved by the steamship 'Dzhurma' which is on its way from Kakhodka to the Kresta Bay carrying vegetables, foodstuffs, manufactured goods, fruits, construction and technical materials, and equipment." The interesting feature of this report is the fact that the steamships "Felix Dzhershinskiy" and "Dzhurma" which were definitely known to be transporting laborers in 1940 are still plying the same route and very likely are carrying the same "freight" because the hulls of these two ships are known to be constructed to carry prisoners, not freight as stated.)

¹ Dallin, David J., Forced Labor in Soviet Russia (New Haven, Yale University Press, 1947), pp. 136-137 ¹ [i.e., Kolyma - ANA(157)]

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According to other sources the number of ships in Dalstroy service is higher than the four ships cited above; it has been positively stated that in 1940-1941 five more steamers (Minak, Ziev, Igarka, Kom-somol, and Uritsky) and the icebreaker, "Sakhalin," were in operation with a total shipping capacity of 35,000 passengers. (Note: Local Soviet Far Eastern radio stations which service areas with shipping administrations have been noted to make reference to the Uritsky, and in the course of the past six months a vessel named "Komsomol" may be the ship "Komsomol," as included in the ships carrying slave labor. This possible identification is noted because monitoring of local Soviet Far Eastern radio stations has always been plagued with the difficulty of "making out" names of persons, ships, and the like.)

It goes without saying that prisoners were also shipped into Kolyva by the northern route—the run from Archangel east through the Arctic Ocean. This route was attempted because during the 1930's Soviet ships carrying slave laborers on the run from Vladivostok to Magadan passed through the Sea of Japan and the Tatar Strait, both of which were constantly filled with Japanese vessels; for obvious reasons, the Russians were not too eager to have the Fascist Japanese circles learn of this Soviet cargo. However, due to the extreme difficulties of navigation along the northern route, successes were few; instances of ships carrying laborers being caught in the ice with no survivors were not few. In summation, even if the northern route is discounted, the importation of 400,000 to 500,000 laborers annually is not impossible.

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Recent estimates of the total population of the area have ranged between 300,000 and 1,000,000; however, in spite of the fantastic death rate among prisoners, millions have been imported as laborers, and there is reason to believe that there is approximately between one and one and a half million people in the area.

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5) Development of the Kolyva Area (1927-1931): Commercial gold mining really began in the Kolyva fields in 1927, and at first the entire production was in the hands of free agents who ventured into the area. "In 1929, according to official Soviet statements, gold was being panned in three fields,.... There were altogether 65 prospectors working in the three fields, and a total of 108 men living in the adjoining settlements."² According to Soviet law at that time, all gold was to be delivered to the government trust, Soyuz-Zoloto (Union Gold); however, no branch of this trust was closer to the Kolyva gold fields than that office in Okhotsk, which was still more than 1,000 miles from the fields. Furthermore, private gold buyers were willing to pay a higher price for gold than was the government which was attempting to keep gold prices on a level with the rising prices of commodities. This situation had the result that a large "black market" in gold arose, and much of the gold, according to Soviet officials, went into the hands of the Japanese, whose fishing boats were almost omnipresent in the Sea of Okhotsk. These fishing boats brought merchandise to sell in the gold fields, and this can be substantiated by the fact that much of the goods in the Magadan area at that time bore Japanese labels.

The Soviet Government found itself faced with two possible solutions to the problem: either it could permit free-lance gold prospecting as had been the case in California and Alaska, or it could invest a large amount of money into the area in an attempt to build up its own resources for extracting the gold. The first measure was hardly feasible, especially by a government whose basic principle was opposition to free enterprise, and the second possibility was practically impossible because the Soviet Union at that time had no money to invest. It was in this manner that the Soviet Government decided to invest its only and largest asset at that time—people. However, since few volunteers were

² Ibid., p. 113.

4 [The Kolyva Region—Analyse]